From the observations of I and its shadow during transits given above (see also *Publ.* A. S. P., no. 17: p. 265, J. E. K.; p. 267, J. M. S.; p. 268, E. S. H.; p. 269, E. S. H. Also, *Astr. Nach.*, nos. 2995 and 3051, E. E. B.), it is plain that various phenomena can be expected. This is probably due to the great variety of backgrounds which *Jupiter's* surface affords; to the effect of *Jupiter's* atmosphere; and, possibly, to that of the satellite.

PATH OF A SHOOTING STAR.

By Torvald Köhl.

Among the corresponding observations on Perseïds made in Denmark this year there is one of special interest to which I beg to direct attention. The meteor appeared on the 11th of August at $10^h\ 34^m\ 29^s$ (mean time of Copenhagen) and was observed in *Copenhagen* and also in *Odder*, situated in 2° 25′ w. long. from Copenhagen, 55° 58′ n. lat.

The lines drawn through the beginning and the end-points of the apparent path almost exactly touched the position [17°, 6° 40′] where the eastern station (Copenhagen) was to be seen from the western (Odder), and with corrected positions

	Beginning.	End.
Odder	312° + 29°	290° + 14°
Copenhagen	234° + 26°	236° + 12°

The computation was made in two different ways, which gave the following results:

Method.	Beginning.			End.		
	h	λ	φ	h	λ	φ
Construction . .	95	2° 0′w.	55° 34′n.	90	2° 36′w.	55° 15′n.
Calculation . . .	95	2° 0′w.	55° 34′n.	93	2° 36′w.	55° 14′n.

The shooting star appeared in a height of 95 kilometers above the northern coast of the Danish island Fyn and disappeared 91.5 kilometers above a place near Assens on the same Island. In about one second this meteor had passed 52 kilometers away,

and from its high place an observer might have seen more than 1000 kilometers round in all directions and would have overlooked a great part of Norway, Sweden, Russia, Germany, France, England and Scotland besides the whole of Denmark, Holland and Belgium.

THE REAL SCHOOL, ODDER, DENMARK,
1891, September 30.

OBSERVATIONS OF MARKINGS ON *JUPITER'S* THIRD SATELLITE.

BY J. M. SCHAEBERLE AND W. W. CAMPBELL.

Great interest has been shown by astronomers ever since the early days of the telescope in the question of the rotation periods of the satellites. The fact that our moon rotates on its axis once in a revolution about the earth has encouraged investigations to determine whether the law holds with the other satellites of the solar system.

As early as 1665, CASSINI * observed that when the satellites of *Jupiter* were in transit across the face of the planet, "he could see markings in exactly the positions where he knew the satellites to be, which proved that the markings were on the satellites themselves." Since these markings could not always be seen he inferred that the satellites rotated on their axis, but published no estimate of their periods. We now know that any attempt to see these markings by means of such rude telescopes as were at CASSINI'S disposal would prove futile.

Sir WILLIAM HERSCHEL † noticed that considerable changes occurred in the brightness of the satellites. During the years 1794–5–6 he made a number of estimates of their brightness when they were in different parts of their orbits, and found that the periodic variations of brightness were explained best by the theory that they rotate on their axes once in a revolution.

In 1796 SCHROETER ‡ saw a dark marking on satellite III on three nights when the satellite was in the same part of its orbit,

* Director of the Paris Observatory. See *Histoire de l'Académie Royale des Sciences.* Tom. I, pp. 265–266.

† See *Philosophical Transactions*, Vol. 18, pp. 187–196.

‡ See *Astronomisches Jahrbuch:* 1800, pp. 169–170; 1801, p. 126.